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ABSTRACT

Athletes have several challenges and demands that increase psychological distress and disturbances to overall wellbeing. Currently, more research is being done to identify issues that college athletes face by not receiving mental health services. College athletes are now being identified in the literature as a vulnerable population. This pilot study looked at a possible mindfulness-based intervention by incorporating yoga sessions. The research hypothesis proposed that the participants who partake in the yoga sessions have a decrease in depression and anxiety, and overall wellbeing. This increase was measured using the Mindfulness Attention Awareness Scale (MAAS), PHQ-9, and the Behavioral Health Measure (BHM-10).

There were a total of 13 participants who agreed to participate in this study. The three measures were collected from each of the participants and the scores were analyzed using independent samples *t*-tests. Results showed a significant difference between those who were classified as food insecure as compared to those not classified as food insecure. Those who indicated they had experienced at least one episode of being without food scored higher in the depression scale. Implications for practice, policy, and research are discussed.

Implementation and Evaluation of Mindfulness-Based Interventions to Improve Mental
Health and Overall Wellbeing of College Student-Athletes

A Thesis

Presented to

The Faculty of the School of Social Work

Abilene Christian University

In Partial Fulfillment

Of the Requirements for the Degree

Master of Science in Social Work

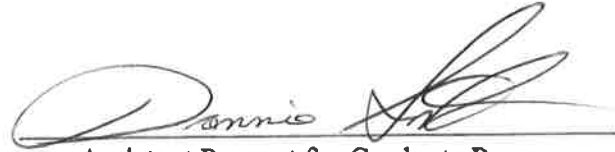
By

Haley Katherine Brock

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This thesis, directed and approved by the committee for the thesis candidate Haley Brock, has been accepted by the Office of Graduate Programs of Abilene Christian University in partial fulfillment of the requirements for the degree


Master of Science in Social Work

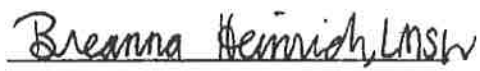

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This thesis is dedicated to my sweet soon-to-be husband, Victor, and my amazing mom and dad for all of their constant support and love they have shown me in this process.

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CHAPTER I

INTRODUCTION

The 2018 National College Health Assessment (American Collegiate Health Association [ACHA], 2016) found that, in a 12-month period, 62.9% of students experienced overwhelming anxiety, 42.7% felt so depressed it was difficult to function, 55.1% felt hopeless, and 12.7% seriously considered suicide. In that same study approximately half (48%) of female and 31% of male athletes reported experiencing depression or anxiety symptoms during the 2008 and 2012 academic years. Other research indicates that up to 20% of college student athletes may be suffering from depression (Sudano & Miles, 2017), and an estimated 10%-15% of college student-athletes suffer from psychological stress requiring counseling (Watson & Kissinger, 2007). College athletes, as compared to non-athletes, often struggle more with traumatic life experiences and have more issues with substance abuse, academics, emotional and relational experiences, and career decisions (Lu, Chan, Cheen, & Kao, 2012). In addition, research indicates that those on athletic teams are more affected by poor performance, injuries, difficulty with weight control, and social pressure; which, all contribute to depression and anxiety (Gulliver, Griffiths, & Christensen, 2012).

Despite growing evidence of mental health concerns, college athletes are often reluctant to seek mental health care (Watson & Kissinger, 2007). Many factors serve as barriers to help-seeking (Beauchemin, 2014). A partial list includes peer norms,

perceived coaches' attitudes, perceived stigma, availability of services, awareness of services, gender, and perceived stigma (Gulliver, Griffiths, and Christensen, 2012; Moreland, Coxe, & Yang, 2017). College athletes may believe that anyone outside of the realm of the athletic department will not understand their needs. Often there is a chasm between the athletic departments and counseling offices on university campuses (Gulliver et al, 2012). Mental health services can help improve these barriers by paying closer attention to the environment that is affecting a student athlete's mental health and overall wellbeing (Gil, 2008).

The purpose of this study is to explore an alternative to seeking traditional therapeutic interventions for athletes. This study uses a mindfulness-based intervention to examine whether it will improve mental health and overall wellbeing in college athletes. Other research indicates mindfulness-based approaches have helped to reduce anxiety, and improve overall wellbeing within the college student-athlete population (Scholefield & Firsick, 2017). The results of this study will bring data and implications for the mental health services offered through the Office of Counseling Services at Hardin-Simmons University. The study is designed to answer the following question: Do mindfulness-based interventions improve the overall mental health and wellbeing of the college student athlete participants?

CHAPTER II

LITERATURE REVIEW

There may be a perception that college athletes are free from mental and social problems. However, in reality, athletes are at a high risk of severe anxiety and depression (Dean & Rowan, 2014). There are several variables that factor into a college athlete's possible anxiety and depression. These factors are what have caused college athletes to be considered most recently as a "vulnerable population" (Dean & Rowan, 2014). For fear of perceived negative consequences associated with seeking mental health services, college athletes often wait until their psychological stress impairs school or athletic performance. As compared to non-athlete students, athletes face many additional stressors (Moreland, Cox, & Yang, 2017). A few of these stressors include maintaining a competition-level physical fitness, meeting the demands and responsibilities of being a member of a sports team, and the pressure to perform.

Athletes as a Vulnerable Population

Most recent research on college athletes have started to refer to athletes as a "vulnerable population." Dean and Rowan (2014) stated, "Athletes experience a wide range of vulnerabilities that often go unaddressed, perhaps because of the perception that since they appear healthy and vibrant, they are free from social problems" (p. 219). In fact, this public perception of toughness among athletes may be partly responsible for the athletes' reluctance to seek help for social, emotional or substance-related problems. While athletes commonly have a lot of support from fans, they often lack a personal, or

social, support system (Dean & Rowan, 2014). Lacking a support system, with the added pressures associated with being a part of an athletic team, can combine to make athletes especially vulnerable to mental illness and substance use disorders (Dean & Rowan, 2014).

Additional stressors placed on student athletes include pressure to perform, pressure to remain healthy or to appear healthy, pressure to serve as a role model, and pressure to conform to social and cultural standards. This means athlete may feel radically different from the student athlete's own cultural and social norms. Many student athletes are recruited for their athletic ability and may attend a university that is thousands of miles from home. This leaves many isolated, lonely, and vulnerable to stress-related illnesses (Moreland, Cox, & Yang, 2017). Substances are often used to self-medicate anxiety, undiagnosed mental illnesses, or sports injuries (Dean & Rowan, 2014). In a national study of substance abuse trends among college athletes, Bracken (2012) found that 83.1% of college athletes used alcohol. Grossbard et al. (2009) asserted that athletes are at a higher risk for substance abuse than are their non-athlete counterparts.

Mindfulness-based Interventions

One method of managing stress and decreasing anxiety is mindfulness practice (Campos et al., 2016; Kabat-Zinn, 2013). Mindfulness involves bringing awareness through attention to the current moment and experience, and then observing without interfering (Monroe, Moore, & Greco, 2017; Yusuf et al., 2018). It teaches individuals how to cope with stressors and promote present-moment awareness (Monroe et al., 2017). This differs from cognitive-focused interventions. Cognitive-focused interventions

work to reframe distorted thoughts and emotions, while mindfulness has the goal of simply bringing awareness to the present moment (Brooks, Iwanaga, Deiches, Chungyi Chiu & Fong Chan, 2018). Practicing mindfulness can disrupt those negative thoughts and adopted a balanced approach. It can also serve as a protective factor for depression and anxiety (Brooks et al., 2018). Having mindfulness skills allows one to possess better emotional wellbeing, coping, and positive affect (Armstrong & Oomen-Early, 2009).

One foundational mindfulness technique that is important to incorporate is being mindful of one's breathing. "By becoming aware of the breath and of when the attention wanders from the breath and then returning to the breath, a person develops the ability to be aware of awareness (Siegel, 2011)" (Beck et al., 2017, p. 893). Mindfulness exercises can cause one to possess the ability to appropriately respond to stresses.

Numerous meta-analyses conclude that mindfulness-based interventions are effective at decreasing stress and anxiety and preventing relapse into depression (Hedman-Lagerlöf, Hedman-Lagerlöf, & Öst, 2018). However, many studies fail to look at the unique effect of mindfulness and most studies are conducted with participants who are not acutely ill with a mental disorder (Ost, 2018). One recent systematic review and meta-analysis concluded that the evidence base for the use of mindfulness-based interventions with persons who are acutely ill with psychiatric disorders was weak.

Another recent trend in practice, and in research, is in abbreviated forms of mindfulness. Brief mindfulness interventions can last up to two weeks or may be as short as a single mindfulness training session (Goyal et al., 2014). While numerous studies have evaluated mindfulness programs lasting between eight and ten weeks, the research on brief mindfulness training is still emerging (Goyal et al., 2014). Some evidence

suggests that the brief mindfulness interventions have immediate and beneficial effects on reducing rumination and associated affect (Broderick, 2005). In a meta-analytic systematic review, Goyal et al. (2014) evaluated the overall effect of brief mindfulness interventions on negative affectivity (i.e., an emotional state that is unpleasant or uncomfortable). The researchers noted that the predominance of studies in their review were of non-clinical samples, but the brief mindfulness interventions studied had a significant, but small, overall effect on negative affectivity.

Mindfulness-based stress reduction (MBSR) and mindfulness-based interventions (MBIs) are becoming commonplace and have been the subject of several studies with college students (O'Driscoll, Byrne, McGillicuddy, Lambert, & Sahm, 2017). A recent systematic review (O'Driscoll et al., 2017) concluded that there is some evidence that MBSR and MBIs are effective at helping undergraduate students reduce stress levels and improve mood. However, that same review reported a lack of consistency (significant heterogeneity) among existing studies for a meta-analysis and this study concluded that more research is needed with more consistent study designs and longer follow-up times.

Incorporating Yoga as a Mindfulness-Based Intervention

One of the most common reflective practices of mindfulness-based intervention is yoga, a mind-body practice that can improve the practitioner's body awareness. Recent studies have identified that yoga is a successful mindfulness practice that can decrease psychological issues that are present (Eggleston, Middlestadt, Lindeman, McCormick, & Koccia, 2011). In the United States, most people practice hatha yoga, which includes breathing techniques and meditation (Uebelacker & Broughton, 2016). The yoga practice focuses on mindfulness, and "may help one to focus on a current experience, rather than

ruminating on the past or worrying about the future” (Uebelacker & Broughton, 2016, p. 20). Yoga instructors typically have their students focus on their breathing and bodily sensations in a non-judgmental way. This is helpful for students that are struggling with anxiety and depression (Uebelacker & Broughton, 2016).

Kabat-Zinn (2013) indicates that because people are often running on automatic pilot, they are unaware of the stresses in their bodies. Yoga can help people to gain better control and teach the body how to relax when stressed. Participation in yoga has also shown in research. According to Martin, Dick, Scioli-Salter, and Mitchell (2015) to “increase self-efficacy and intrinsic motivation” (p. 328). Research has shown that improving one’s self-efficacy may increase mental health symptoms (Martin et al., 2015).

Yoga is one of the most widely used adjuncts to therapy in a variety of clinical settings. A number of recent articles indicate that yoga can be used as a treatment for several mental and physical disorders (e.g., Hendriks, de Jong, & Kramer, 2017; Pascoe and Bauer, 2015; Price et al., 2017). Most notably, yoga seems to offer relief from symptoms of posttraumatic stress disorder (PTSD), major depressive disorder, and epilepsy (Price 2017; Streeter, Gebarg, Saper, Ciraulo, & Brown, 2012). Theoretically, yoga breathing helps to restore homeostasis in the autonomic nervous system by decreasing sympathetic nervous system activation and increasing parasympathetic nervous system activity (Streeter et al., 2012). This resetting increases prefrontal cortex activity, and reduces activity in the amygdala, thereby increasing stress tolerance (Streeter et al., 2012). One systematic review seems to lend some support to this theory concluding that “the large majority of the studies provide some evidence that yoga is associated with

biological changes in blood pressure, heart rate, cortisol or cytokine levels” (Pascoe & Bauer, 2015, p. 280).

With healthy adults, there is also some evidence that yoga promotes mental health, but only when compared to no intervention. Because only a few studies of the effects of yoga on mental health in healthy adults exist, no solid conclusions about the effectiveness of yoga with this population are currently possible (Hendriks et al., 2017). The current body of research of the effectiveness of yoga in promoting mental health in healthy adults is plagued by a number of problems. There is much heterogeneity in the types of yoga used, and in the measures used to assess mental wellbeing (Hendriks et al., 2017).

Yoga and College Athletes

One of the biggest challenges to helping athletes cope with stress and related mental problems is getting athletes to seek professional help. An interdisciplinary team approach that brings multiple professionals together is one recommended approach to providing holistic care for injury rehabilitation (Arvinen-Barrow & Clement, 2017). Such approach is also used in many mental health treatment settings and mindfulness-based yoga practitioners can easily be included as team members.

Yoga may be offered as an alternative. Because yoga can be offered inside of a fitness center or in non-clinical settings, athletes may be less reluctant to participate. Because yoga can be a physical activity similar to stretching or gymnastics, it is not typically perceived as a mental health service (Martin et al., 2015). Yoga offered within a sports program could likely offset some of the social and cultural influences that help shape athletes reluctance to seek mental health services (Moreland et al., 2018). College

athletes are constantly having to participate in physical activities for their sport and their conditioning. Incorporating yoga exercises is a helpful way to include physical activity while implementing a therapeutic intervention. “Yoga may impart psychological benefits by increasing mindfulness and improving emotion regulation” (Martin et al., 2015, p. 328).

Yoga practices incorporate mindfulness practices because of the emphasis placed on focusing on, and altering breathing (Kabat-Zinn, 2013; Streeter et al., 2012). As the breath is an element of the autonomic nervous system that can fairly easily be controlled (Streeter et al., 2012), yogaic and mindfulness breathing techniques can be practiced anywhere. College athletes can easily incorporate yoga breathing in their daily lives to promote calmness and reduce stress. For example, college athletes may find it helpful to practice breathing techniques before performing in a sporting event or before taking a test for a class. This mindfulness technique can help athletes manage emotions more effectively.

Mindfulness, however, has its limitations as well. For example, Kuhl and Boyraz (2016) stated, “Increased awareness of distressing thoughts and emotions may be overwhelming for individuals who are already experiencing significant distress” (p. 151). Thus, this is why it is important to understand when mindfulness has the most benefits for the person’s mental health and overall wellbeing.

Mindfulness-based training programs are aimed at promoting mental health and wellbeing for student athletes. The programs are focused on relaxation, awareness, and acceptance of thoughts and emotions (Scholefield & Firsick, 2017). Researchers found that relaxation, concentration, imagery, and self-talk proved to be useful mindfulness-

based interventions (Kudlackova, Eccles, & Dieffenbach, 2013). Using these mindfulness skills interchangeably allows one to reduce anxiety and focus on the task before them (Beauchemin, 2014).

Student athletes can become so desensitized by daily tasks that they may find that they are not noticing their thoughts, feelings, or bodily sensations. Mindfulness practices allow one develop an awareness to these thoughts and feelings. can also help decrease negative thoughts and anxiety that can be present (Gustafsson, Martinent, Isoard-Gauthier, Hassmén, & Guillet-Decas, 2018).

Mental Health of College Student-Athletes

Research indicates that approximately 20% of American youth meet criteria for a mental health disorder and will experience severe impairment some time within their life (Neal et al., 2013). According to Neal, “More than 30% of all undergraduate students reported feeling so depressed that it was difficult to function, and few youth or young adults receive adequate mental health care” (Neal et al., 2013, p. 718). For college athletes, sports injuries seem to increase the risk of suffering mental distress (Neal et al., 2013; Sheinbein, 2016). Additionally, excessive worry about reinjury can be debilitating (Neal et al., 2013). Collegiate athletes use alcohol and other drugs, and binge drink, at higher rates than do their non-athlete college counterparts (Neal et al., 2013).

Several barriers exist that keep college student athletes from receiving counseling services for depressed and anxious feelings. Many student-athletes worry that their position on the team may be compromised or that their playing time may be reduced once coaches become aware of mental health concerns (Neal et al., 2013). Student athletes may not view counselors and psychotherapists favorably if they do not believe they

understand the unique world of athletics (Neal et al., 2013). College student-athletes worry about the assumptions and opinions others may have if they are to seek help (Sheinbein, 2016). Gulliver et al. (2012) reported, “Over 40% of the barriers listed by participants related to stigma and the embarrassment an athlete would feel in seeking help” (p. 10).

Another major barrier to college student-athletes seeking help is time management (Gulliver et al., 2012). College student-athletes often have very busy schedules. However, most university services will work around athlete schedules to make sure such services are available to athletes. Barnard (2016) stated, “Pinkerton and colleagues (1989) cited these specific issues: social isolation due to time demands of games and practice, poor athletic performance (actual or fantasized) that led to decreased self-esteem, and identity conflict between potential vocational goals and sport-related goals” (p. 162). This is a recurring theme in literature when looking at time constraints and college student-athletes.

Overall Wellbeing of College Student-Athletes

Due to the amount of challenges and demands that athletes are forced to face, there is a potential increase in psychological distress (Barnard, 2016). Moreover, the psychological distress can cause a direct effect on an athlete’s overall wellbeing and quality of life. The everyday stress athletes face without receiving any mental health services affects their wellbeing (Malinauskas, 2010). Researchers theorize that many athletes internalize these stressors and anxieties. Malinauskas (2010), for example, found that injuries to athletes can cause much internal distress and have a detrimental effect on their overall wellbeing.

According to Moore (2016), it is important to have an ecological perspective when relating to college athletes. Such a perspective takes into consideration, personal, familial, social, cultural and other external variables that influence mental health, mental illness and help seeking behavior. Within an ecological perspective, barriers to help seeking can be identified and addressed. As Moore (2016) explains, an ecological framework assists helpers in understanding the “various constructs and perspectives that support the engagement, teaming, assessment, planning and intervention of athletes when they are experiencing psychosocial challenges” (p. 267). Understanding ecosystemic risk factors can facilitate helping college student-athletes with their overall wellbeing.

Due to the low number of college athletes that attend the Office of Counseling Services at Hardin-Simmons University (HSU), this research study was created to implement a therapeutic intervention that did not have to be put into effect within the counseling office. This research study executes and evaluates the effectiveness of mindfulness-based interventions, and this study will be easily accessible and free to students.

As discussed above, mindfulness-based interventions may be an effective strategy for helping college student-athletes learn to reduce stress and anxiety and achieve a calm mental state (Campos et al., 2016; Kabat-Zinn, 2013; Yusuf et al., 2018). Therefore, this research will address the usefulness of a mindfulness-based intervention, as an alternative to traditional psychotherapy for engaging college athletes in stress-reduction practices (Parcover, Metrick, Parcover, & Griffin-Smith, 2009).

CHAPTER III

METHODOLOGY

Participants in this study included members of athletic teams at Hardin-Simmons University (HSU). The university is a small private university in west Texas. Prior to data collection, approval for the research was secured through the Abilene Christian University Institutional Review Board (IRB). Once approved, potential research participants were made aware of the study, by the team coaches, through verbal invitation to participate. To avoid coercion, coaches were instructed that they could not require participation or offer incentives for participation. The purpose of this pilot study was to evaluate the mental health and overall wellbeing of college student athletes at HSU. The researcher hypothesized that, participants experiencing a mindfulness-based yoga intervention would show pretest to posttest decrease in anxiety and depression scores.

Participants

The participants were currently enrolled in university coursework, members of an athletic team within the university, and were at least 18 years of age. The respondents' ages ranged from 18 to 24 with the largest percentage (i.e., 53.8%) falling into the 18-24 range. Unfortunately, eight participants failed to mark a response to this questionnaire item. Most of the participants were members of either the golf or the tennis team. Low participation from the other sports resulted in a lower than expected sample.

Research Design and Data Collection

This study is a pilot study to determine feasibility of offering mindfulness-based yoga to college athletes. A quantitative design using measures of mental stress and well-being was used in order to help answer the research question. Independent samples *t*-tests were performed to compare pretest and posttest means. The study was approved by the Institutional Review Board of Abilene Christian University and Hardin-Simmons University. To protect the students' rights to confidentiality, no identifying information was recorded. Student athletes were made aware through verbal invitation to participate from research team members. Coaches were also contacted and made aware of the study through verbal invitation and were asked for the opportunity to have their athletes participate in the study.

Sample

The sampling frame for this study consisted of all currently enrolled HSU students who were part of athletic teams. To recruit participants, the HSU a meeting of coaches was held to discuss strategies for recruitment of participants for the study. Coaches agreed to pass on information, and a link to the survey hosted on SurveyMonkey, to potential participants. Individual participants met the criteria for the study if they were a member of an HSU athletic team and were 18 years of age or older. Consent to participate in the study was included in the SurveyMonkey survey and was required before participants could complete the questionnaire items. A total sample of 13 participants was obtained.

Instruments

Several measures were used to evaluate the intervention. These instruments included those that measured depression, anxiety, wellbeing, and mindfulness. All instruments were converted to SurveyMonkey multiple-choice questions. Therefore, outcome variables included mindfulness ability, anxiety, and wellbeing. Following is a description of these measures.

Mindfulness

Mindfulness was defined by having a non-judgmental awareness to one's thoughts and feelings, and the person's ability to stay present in the current moment. This was measured using the Mindfulness Attention Awareness Scale (MAAS) Brown and Ryan, 2003).

Brown and Ryan (2003) operationally defined mindfulness as an open or receptive attention to and awareness of present events and experience. This is assessed on the MAAS by asking respondents to rate the frequency with which their day-to-day consciousness reflects this quality (Christopher et al., 2009, p.151). The scale includes statements that indicate mindlessness (e.g., "I do jobs or tasks automatically, without being aware of what I am doing"). This measure consists of 15 items, and each item lists a statement in which participants rate their responses on a six-point scale. The scale ranges from 1 (almost always) to 6 (almost never).

Anxiety and Depression

Anxiety and depression were measured using the Patient Health Questionnaire (PHQ-9). The PHQ-9 is a self-administrated screening tool consisting of nine individual items. The PHQ-9 is widely used and has been standardized for numerous populations

(e.g., Arrieta, et al., 2017). The instructions tell the participants to think about the prior 14 days and offers this prompt: “How often have you been bothered by...” (Garlow et al., 2008). These items correspond to the *DSM-5* criteria for major depressive disorder (Gjerdengen et al., 2009) The items are scored on a scale of zero to three, with zero being not at all, one meaning several days, two meaning more than half the days and three being nearly every day. The nine individual items include little interest or pleasure, feeling down or depressed, sleep disturbance, fatigue, appetitive disturbances, feelings of fatigues, guilt, concentration difficulty, psychomotor retardation or agitation, and suicidal or self-destructive ideas. The scores of 5, 10, 15, and 20 correspond to mild, moderate, moderately severe, and severe levels of depression (Kroenke, Spitzer, & Williams, 2001; Spitzer, Kroenke, & Williams, 1999).

Wellbeing

Psychological wellbeing was measured using the Behavioral Health Measure (BHM-20; CelestHealth Solutions, 2008; Kopta & Lowry, 2002). BHM-20 is a brief 10-item self-report measure that typically takes one to two minutes to complete. The assessment tool is measured on a Likert scale ranging from zero (*almost always*) to four (*never*). It corresponds to Life Functioning (LF), which is subscale comprised of four items that assess the extent to which the respondent perceives performance in relation to work and school, relationships, and overall life satisfaction. Scores for each subscale are calculated by taking the mean score for all subscale items. The higher the mean the more distress one may be dealing with in their life.

Analysis

Scale score were calculated and analyzed using SPSS version 25. Descriptive statistics were computed for all socio-demographic variables in the sample. Independent samples *t*-tests were performed to compare pretest and posttest means. Further discussions for future research were drawn from these statistical results.

CHAPTER IV

FINDINGS

Descriptive statistics for each of the three scales (i.e., MAAS, PHQ-9, and BHM-20) were calculated to develop a description of participants. A total score was obtained for each of the participants' SurveyMonkey responses. The descriptive statistics showed that there were 20 female respondents (47.6%), and one male respondent (4.8%). The respondent ages ranged from 18-24 with the largest percentage (53.8%). However, eight participants failed to mark a response to this questionnaire item. The descriptive statistics also showed the participants identified predominately as Caucasian (42.9%). Participants were primarily involved in either golf (19.0%) or tennis (19.0%), with low participation from the other sports.

Demographic information was obtained for each participant to help the researcher gain a better understanding of each participant (see Table 2). There was only participation of 1 male in this study, and the rest were female. This causes an unequal representation of both genders. Unfortunately, eight participants failed to mark responses on the demographic section of the survey. Which resulted in only having 13 responses on the demographic section. The ages of the participants ranged from 18-24 with the largest percentage resulting in the 18-20 range. Nine out of the 13 marked participants identified as Caucasian, with two indentifying as Hispanic and one as African American.

Table 1

Distribution of Participant Ages

Age Range	Frequency	Percent
18 – 20	7	33.3%
21-24	6	28.6%
Total	13	61.9%
Valid Percent		100.0%

As Table 1 indicates, respondent ages ranged from 18 to 24 with the largest percentage (i.e., 33.3%) falling into the 18-20 range. Unfortunately, eight participants failed to mark a response to this questionnaire item. Table 2 presents the ethnic breakdown of participants. As the table shows, 75% of participants indicated Caucasian as their ethnic background. There were 16.7% indicating a Hispanic/Latino ethnicity and 8.3% indicating African-American as their ethnicity. HSU is predominately Caucasian, private Christian college. Diversity in participants does serve as a limitation in this pilot study.

Table 2

Distribution of Participant Ethnicities

	Frequency	Percent	Valid Percent
African American	1	4.8	8.3
Hispanic/Latino(a)	2	9.5	16.7
Caucasian	9	42.9	75.0
Total	12	57.1	100.0
Missing	9	42.9	
Total	21	100.0	

Table 3 shows that 90.9% of respondents were female. Only one male participated. Table 4 indicates that most of the participants participated in either golf or tennis, with low participation from the other sports. There was little to no participation

from other sports within the university. Coaches stated that it was difficult for the athletes to participate due to time constraints and other engagements. However, the study received a higher participation rate from the head coach of the tennis team and the head coach of the women's golf team. For further research, the study hoped to find a way to better recruit male participants to have an equal gender representation.

Table 3

Distribution of Participant Gender

Gender	Frequency	Percent
Male	1	4.8%
Female	10	47.6%
Total	11	52.4%
Total	21	100.0%

Table 4

Distribution of Participant Sport

Sport	Frequency	Percent	Valid Percent
Soccer	1	4.8	7.7
Dance	1	4.8	7.7
Basketball	1	4.8	7.7
Golf	4	19	30.8
Softball	1	4.8	7.7
Tennis	4	19	30.8
Track & Field	1	4.8	7.7
Total	13	61.9	100.0

Table 5 presents results for comparison of pretest and posttest means. As the table indicates, no statistically significant (i.e., $p < .05$), pretest to posttest differences were observed. While the PHQ9 score did drop by 4.31 percentage points, the null hypothesis cannot be rejected, and chance cannot be ruled out as the cause for this difference.

Interestingly, the PHQ-9 pretest score indicates that several participants are experiencing moderately severe depression.

Table 5

Descriptive Statistics and Tests for Significant Differences from Pretest to Posttest

	Pretest			Posttest			F	Sig.
	Mean	N	SD	Mean	N	SD		
BHM10 Dep	21.92	13.00	4.86	24.13	8.00	3.00	1.32	0.27
BHM10 Anx	14.38	13.00	4.87	15.63	8.00	1.85	0.47	0.50
PHQ9 Total	19.31	13.00	5.51	15.00	8.00	2.14	4.40	0.05
Mindfulness Scale Mean	3.57	13.00	0.48	3.93	8.00	0.42	3.14	0.09

Independent samples t-tests were performed to compare pretest and posttest means (see Table 6). One interesting finding was that this test indicated a significant difference between the PHQ-9 pretest and the PHQ-9 posttest ($t [16.86] = 2.53, p = .02$). No other statistically significant differences were observed.

Table 6

Independent Samples t-test

	Test	N	Mean	SD	SE	T	P
BHM10_Dep	Pretest	13	21.92	4.86	1.35	-1.29	0.21
	Posttest	8	24.13	3.00	1.06		
BHM10_An timer	Pretest	13	14.38	4.87	1.35	-0.83	0.42
	Posttest	8	15.63	1.85	0.65		
PHQ9 Total Score	Pretest	13	19.31	5.51	1.53	2.53	0.02
	Posttest	8	15.00	2.14	0.76		
Mindfulness Scale Mean	Pretest	13	3.57	0.48	0.13	-1.78	0.09
	Posttest	8	3.93	0.42	0.15		

CHAPTER V

DISCUSSION

The purpose of this study was to implement and evaluate mindfulness-based interventions on improving mental health and overall wellbeing in college student-athletes. This research hopes to lead to furthering a stronger relationship with mental health services and the athletic department. The production of this research hopes to create an effective intervention for athletes to participate in on their own time schedule.

Discussion of Findings

Because this was a pilot study, some problems were encountered during the course of this research. First, a problem in the logic of the informed consent agreement button took the first wave of participants to page five of the survey instead of to the demographic questionnaire. This meant that the last two digits of the student ID, meant to be used to pair pretests and posttests, were not collected. Second, there were some misunderstandings among the researcher, the athletic coaches, and the athletes. This led to a much lower participation rate than was originally anticipated. Third, due to the amount of time it took to obtain permission to conduct this study, only a few weeks were available for pre-intervention data collection, intervention, and post-intervention data collection. In addition to these findings, there were indicators of concerns of confidentiality of student. Due to the fact the study was taken place in a small private university, it is believed that the participants were worried about the confidentiality of their responses to the survey, despite the reassurances from the researchers. The findings

also that there can be interventions implemented for athletes to decrease depression and anxiety.

Implications for Practice

The intent of this study was to inform practice in the Office of Counseling Services at Hardin-Simmons University. This mission of this agency is to promote holistic wellness by enhancing mental health in the community. The literature review showed that many college-student athletes do not seek mental health services due to stigmas and specific barriers (e.g., Dean & Rowan, 2014). This study hypothesized that mindfulness-based practices would help decrease these risk factors. “Mindfulness begins by bringing awareness to current experience--observing and attending to the changing field of thoughts, feelings, and sensations from moment to moment--by regulating the focus of attention” (Bishop et al., 2004, p. 232). It also can provide useful intervention tools for the college athletes to use when they are feeling distressed.

Despite the growing awareness of the importance of the mental health of college athletes, evidence of effective interventions and accepted screening tools to assess the mental and overall well-being of collegiate athletes is limited (Steiner, Brassington, Matheson & King, 2003, Sudano & Miles, 2017). This lack of research implies that research is needed to help fill this research gap. It appears there is great need of participation between mental health services and the athletic department to work together

In this study, a statistically significant ($p < .05$) *t*-test on the PHQ-9 does suggest that, even though the intervention was very short, this form of mindfulness-based yoga can possibly benefit depressed athletes. Because of the small sample size and inability to pair data, this statement is only conjecture; however, this finding is consistent with other

research. Athletes tend to fall within the high-risk age group of mental disorders (Gulliver et al., 2012). Interventions for college athletes who are not seeking help is desperately needed. College athletes often do not seek professional help for any anxiety or depression symptoms they may be experiencing. Literature reports lack of seeking services relies heavily on stigma surrounding mental health services (Gulliver et al., 2012). This pilot study creates implications for future research for college athletes that see counseling as a barrier.

Better Communication among Researcher, Coaches, and Others

A second implication from this pilot is that communication needs to be enhanced among key persons participating in this research. A longer planning period involving such people could potentially ensure that everybody understands the need for the research, everybody buys into the research, and everybody knows what to do and say. Given a longer duration for the study, such issues could potentially be ironed out in meetings

Field Testing the Survey

The lesson learned from this pilot was the need to field test the survey instruments prior to actual data collection. Field testing would have helped to prevent the problem with the logic in the “I Agree” field in the questionnaire that directed respondents to the wrong page. Developers of surveys nearly always field test the questionnaires, prior to actual data collection, to reduce problems (Uebelacker & Broughton, 2016). In this case, the shortened amount of time for the intervention and data collection prevented the researcher from collecting sufficient matching pairs on measurement scales.

Call for Social Workers in College Athletics

Currently within the athletic department at HSU, there are currently no social workers or sport psychologists working with the college athletes. Due to the vulnerability of the population, the mission of the social work profession is able to best be utilized (Gill, 2008). “Social workers have the skill set to help student-athletes better manage their time, overcome developmental crises, and cope with the difficulties related to balancing their academic and athletic roles” (Gill, 2008, p.86). However, having social workers with the athletes may make the athletes feel stigmatized by receiving services. Nevertheless, there is a great call for social workers to raise awareness that college athletes are a vulnerable population. College athletes are not seeking services they need for, substance abuse, mental health disorders, and other quality of life issues customarily addressed through social work intervention” (Gill, 2008, p. 87).

Implications for Policy

Because of various requirements imposed from the two separate universities (i.e., Institutional Review Board permissions) involved with this study, the amount of time available to conduct this research was very limited. Perhaps the two universities could work together to streamline approval processes so that a longer period could be devoted to implementation of the research. By the time all needed permissions were obtained, time to collect data, implement the intervention, and collect post intervention data was extremely limited.

There are several implications for policy changes for college athletes. This study hopes to bring awareness to their vulnerabilities. Policy changes could include requiring athletes to be more involved in mindfulness-based interventions as part as their

requirements. This would allow athletes to incorporate therapeutic interventions into their busy schedules. Another policy change that could prove as effective is requiring a social worker to be part of the athletic department. Allowing a social worker to work with the athletes would create an overall better environment. It would allow the social worker to better screen the athletes for any mental health concerns. A social worker's knowledge of policy and research would allow them to better see any policies that may be directly affecting athletes.

Implications for Research

In reviewing the research question proposed for the present pilot study, little results in request of the research question were found. In response of the RQ, participants who completed the yoga sessions were found to have statistically significant increase from the PHQ-9 scale from the pretest and posttest. Which means there was a decrease in the anxiety and depression from pretest to posttest. It is difficult to identify how effective the yoga sessions were due to the low participation rate.

First, the study believed yoga was the best implemented mindfulness-based intervention for the college athletes. A goal of this study was to identify time-sensitive, mindfulness-based intervention to improve a college athlete's mental health and wellbeing. An intervention has to take into regards that college athletes have time consuming schedules. It is important to utilize an intervention without adding more to their load. Yoga sessions were decided to be the easiest and best way to implement a mindfulness-based intervention to analyze pretest and posttest.

There is a need to promote further research studies on the effectiveness of mindfulness-based interventions for college athletes to improve mental health and overall

wellbeing. There is a lot of research that exists regarding mindfulness interventions; however, there is a need for more research on the effectiveness of these interventions on college athletes. Additional research would allow future researchers the ability to provide more intervention methods to college athletes who may be suffering from depression and anxiety. In addition to future research, incentive would be provided so that the college athletes might feel more inclined to participate in this study.

Limitations

The primary limitation in this study was the small sample size, as it was not large enough to run statistical analyses or demonstrate statistical significance. Due to the time constraints, the researcher was only able to collect data for one month. As a result, the study included less than 15 respondents. It is likely that this sample is not a representative for college athletes at HSU. Moreover, there is a general lack of participation and diversity within the sample. The majority of the respondents were female, Caucasian, with ages ranging from 18-24 years old. Although the sample size was small, the participants that did complete the pretest and posttest were beneficial in helping the researcher evaluate whether mindfulness-based interventions can improve mental health and overall wellbeing. Another limitation of this study was the limited number of participants in this study. Only a few participants actively participated in all three yoga sessions. An additional limitation of this study was the unequal representation of ethnicities. Only one of the 21 participants marked themselves African American.

A further limitation was the fact that several of the participants did not answer the demographic survey questions on the pretest. The researcher had difficulty identifying the participants' demographics due to this mishap. Also, the participation mainly came from

golf and tennis participants, which limits the data when trying to get a good look at the overall athletics at the university. The study possessed an overall lack of active participation between researcher and athletic department. Future research should involve a better buy-in from all departments to conduct the research for athletes to promote overall wellbeing and improved mental health.

Another major factor that provided a limitation for this study was the fact the sessions happened before spring break for the students. This may have caused the students to feel more stressed. Generally, the time before spring break can become stressful due to end-of-the-year projects, tests, etc. The participants might have felt their stress and anxiety heightened at this time. The academic calendar for students is something to take into consideration when looking at future research studies.

Suggestions for Improvement

The primary limitation of this study was the sample size, resulting in the study becoming a pilot study. Future studies should include more participants to demonstrate greater statistical significance. In order to increase the sample size in future studies, the involvement of coaches will be greater, allowing the number of athlete participants to increase. Additionally, a larger time-frame to conduct this research would provide opportunity to draw better conclusions of the effectiveness of the study. Also, it may prove helpful to conduct further research during early fall semester. Several factors weighing into the participation response may be in regard to the stressful, busy time in which the study took place as the time before spring break has been discussed as a stressful and busy time for all students. In the future, researchers suggested that the studies be conducted earlier in the year when stresses are not as high.

CHAPTER IV

CONCLUSION

This research study was able to find evidence that there was a decrease of depression and anxiety from the pre- and post-test in this study as shown in the PHQ-9 measuring scale. The effectiveness of mindfulness-based intervention on mental health and overall wellbeing effectiveness was conceptualized through yoga sessions. Further research is needed to adequately assess the impact of mindfulness-based interventions. The greatest limitations for this study relate to the small sample size, lack of diversity within the sample, and the lack of participation of the athletes. Despite these limitations, this study has implications for improved health interventions, improved relationship between the athletic and counseling offices, reduced stigmas and barriers for student-athletes in obtaining mental health help, and increased utilization of interventions in everyday life. These implications, if they were to be implemented, would allow college athletes to be seen as a more vulnerable population and address mental health needs and overall wellbeing more effectively.

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APPENDIX

IRB Approval Letter

ABILENE CHRISTIAN UNIVERSITY

Educating Students for Christian Service and Leadership Throughout the World

Office of Research and Sponsored Programs
320 Hardin Administration Building, ACU Box 29103, Abilene, Texas 79699-9103
325-674-2885



December 7, 2018

Haley Brock

Department of Social Work

Dear Haley,

On behalf of the Institutional Review Board, I am pleased to inform you that your project titled "Does mindfulness practices improve overall wellbeing of the college athlete participants."

(IRB# 18-120) is exempt from review under Federal Policy for the Protection of Human Subjects.

If at any time the details of this project change, please resubmit to the IRB so the committee can determine whether or not the exempt status is still applicable.

I wish you well with your work.

Sincerely,

Megan Roth

Megan Roth, Ph.D.
Director of Research and Sponsored Programs